

Discovery of a further population of the Eltham Copper Butterfly *Paralucia pyrodiscus lucida* Crosby (Lepidoptera: Lycaenidae) in Bendigo, Victoria

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Abstract

A previously unrecorded population of *Paralucia pyrodiscus lucida*, the Eltham Copper Butterfly, was discovered in late December 2007 at Big Hill, 11 km south of Bendigo. Up to 50 adult butterflies were seen flying during sunny weather. A preliminary site description is given and the implications of this discovery are discussed. (*The Victorian Naturalist* **125** (6), 2008, 178-180)

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Introduction

The Eltham Copper Butterfly *Paralucia pyrodiscus lucida* Crosby (ECB) is a small lycaenid butterfly endemic to Victoria. It is listed as Vulnerable under the Flora and Fauna Guarantee Act 1988. The biology of ECB is summarised by Braby (1990) and Braby *et al.* (1992, 1999). Endersby (1996) provides a detailed account of ECB natural history, ecology and behaviour. There are currently eleven protected colonies in Victoria, distributed along the south-western end of the Great Dividing Range, over a distance of approximately 400 km. A detailed description of sites can be found in Vaughan (1988), van Praagh (1996) and Canzano *et al.* (2007).

Until recently, ECB was known from three regions in Victoria. In mid-December 2007 a previously unrecorded population of Eltham Copper butterflies was discovered by JW in Big Hill, Bendigo, whilst collecting data for a conservation project. This population is approximately 30 km from the nearest known population, and is the first such significant discovery since a population was found at Kalimna Park, Castlemaine, during the 2002 flight season. The region around Bendigo represents a mixture of residential development and natural bushland. Historically, the area was mined for gold and the physical legacy of mining activities remains as part of the landscape in many areas.

ECB was first observed at the site on 5 December 2007, when two butterflies were seen flying within a patch of *Bursaria spinosa*. Further visits on 7 and 8 December resulted in observations of up to 50 adults flying during sunny weather. A return visit on 17 January 2008 yielded only two butterflies in flight. A follow-up visit by JW on February 26 yielded approximately 20 butterflies in flight, with several females ovipositing on *B. spinosa*. Formal monitoring surveys are yet to be commissioned. However, at this point the observations made at the site indicate a substantial population, comparable to that at Kalimna Park in Castlemaine. The associated attendant ant has been identified as *Notoncus capitatus* Forel, the same species of ant that attends ECB at Eltham and Castlemaine.

Site description

The recently discovered population of ECB is located at Big Hill, about 11 kilometres south of Bendigo, Victoria (144° 14' 35"E, 36° 49' 47"S). The colony occurs on a 12 hectare gazetted Reserve, currently managed by Parks Victoria (PV), as part of the Bendigo Regional Park. The Department of Sustainability and Environment (DSE) has a partnership role with PV to manage threatened species and communities. The vegetation at Big Hill is typical Box-Ironbark forest and open

woodland, dominated by *Eucalyptus melliodora* and *E. polyanthemos*, with widespread scattered patches of *Bursaria spinosa*, that has several small populations of ECB. A dry creek bed runs through the main habitat area at the eastern end of the reserve, with a small foot bridge over the creek. Historically, the area was an alluvial goldmine and shallow pits and shafts are still present at the reserve. The soil type is of Ordovician age and consists of sandstone, siltstone, mudstone and shale. The Bendigo–Melbourne train line is located to the south-east, with a well-established residential area within 300 metres of the reserve.

The area of the land covered by *B. spinosa* and where the butterflies occur is approximately 10×50 m. Three other smaller patches of *B. spinosa* cover an area of approximately 30×30 m. The *B. spinosa* bushes in these patches are larger and no butterflies were present. The patches of *B. spinosa* with and without butterflies are currently being mapped. The Reserve lies adjacent to Big Hill Primary School. The students have limited access to the Reserve and its surrounds. This has been the case for many years and the population of ECB appears to have withstood this human access to the area. It is also interesting to note that the butterfly has persisted even though the landscape has been modified from past goldmining activities. The Reserve used to be known as Big Hill Public Use Reserve, with members from Big Hill Primary School and the local community involved in its management, overseen by DSE. There is an old, damaged information board at the entrance to the Reserve, which indicates that there was probably a lot of interest generated and maintained at one stage. Past management activities include a dam that was dug in 1991 as a water source for native fauna, and nest boxes installed to provide hollows. There is little evidence of past management activities that may have affected *B. spinosa*, except for removal of *Pinus radiata* stands in 1962. There are currently no existing management activities at the Reserve. However, DSE and PV are currently in negotiations for further management works to the area, including fencing and the removal of an old bridge on site.

Relevance of the new discovery and its implications

Discovery of ECB in Eltham in the late 1980s led to considerable community and political interest, and this set a precedent for insect conservation in Australia (Braby 1987). Over the years, concern for the plight of the butterfly has fluctuated somewhat. Discoveries such as this rejuvenate community awareness so that there is increased involvement in protecting the butterfly and its habitat. At Eltham and Castlemaine, involvement of members of the local community has contributed to fundraising opportunities, formation of Friends' groups, and recruitment of volunteers for monitoring and habitat management. The campaign for increasing public awareness about the Big Hill Reserve is already underway, with assistance from DSE in Bendigo and members of the ECB Recovery Team. A media release was made in late January 2008, with articles in *The Age*, *The Bendigo Advertiser* and *The Geelong Advertiser* publicising the discovery. Such publicity also endeavours to highlight the value of a threatened species within the community's regional environment. A population such as that at Big Hill reinforces the notion that native bushland has been well preserved in their region.

It is unknown whether other populations of ECB occur within the vicinity of Big Hill Reserve. ECB occurs in fragmented pockets without the ability of interchange between patches, and is still limited by specific habitat. However, there is a likelihood that ECB may be more widespread, and any opportunity for conducting new surveys in surrounding areas should not be missed. The opportunity exists for local tertiary institutions and students to become involved in further ECB and other threatened species research. The discovery of the new site may raise new questions about the natural history of ECB, and is a potential new study site offering opportunities for further understanding of the butterfly's biology, ecology and habitat requirements. There is currently no information available on genetic variation of the butterfly across different sites. Preliminary genetic studies on the closely related Bathurst Copper Butterfly *Paralucia spinifera*, indicated that heterogeneity within colonies was

high but that individual colonies were closely related (NSWNPWS 2001). This may suggest that there is movement between colonies or that time since separation and isolation of the various colonies is relatively recent. It would be interesting to test whether studies of ECB show similar results. We also recommend that searches should be conducted for other invertebrate and vertebrate species that may be of conservation significance.

The immediate objective for the Big Hill population is to assess the factors which may be detrimental to the wellbeing of the butterfly. The relevant management agencies aim to identify the long-term trends of disturbance and develop ways to mitigate these to ensure the protection of the colony. A benefit here is that the land is already a gazetted Reserve, so issues with the population being under threat from development may not arise. Long-term objectives include ongoing habitat preservation through stakeholders, the Bendigo community, local schools and residents in the immediate vicinity of Big Hill. The latest discovery could be a major asset to Big Hill Primary School by incorporating study of the butterfly into the school curriculum and embracing ECB within the school community. Involvement should also extend to other local schools and businesses, which have the opportunity to develop environmental projects and adopt ECB as a symbol to promote businesses and their local region. At present no Friends group exists for the Big Hill population. However, it is understood such a group may be formed in the near future.

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Anne was an active member of the Group and made the discovery of a further ECB population at Kalimna Point in Kalimna Park in 2006. Anne worked tirelessly at monitoring the butterfly and conserving its habitat and she will be sadly missed.

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